IDAHO

DEPARTMENT OF FISH AND GAME

Jerry M. Conley

PAHSIMEROI HATCHERY

Annual Report

1 October 1980-30 September 1981

By

Bob Moore
Fish Hatchery Superintendent I

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ABSTRACT

Some 862,494 7-to-12-inch steelhead smolts were received from Niagara Springs Hatchery and releases at the trap facility during March and April.

There were 40,119 steelhead smolts vaccinated for vibrio disease; 40,533 smolts were vaccinated with a placebo; and 40,114 were kept untreated as a control group. Each group was fin-clipped and a coded-wire tag inserted. The returns will be monitored to assess the effectiveness of the vaccination in returning adults to the hatchery.

During the spring of 1981, 3,408 A-Group steelhead and 83 B-Group steelhead were received at the trap, a total of 3,491 steelhead.

We took 6,527,702 eggs from A Group fish, and 376,575 eggs from B Group fish.

The eye-up success was 81.3% for A Group and 84.2% for B Group eggs.

We planted 1,981,126 A Group fry and 70,272 B Group fry in tributaries to the upper Salmon River.

We received 26 males, 5 females, and 4 jacks during the summer chinook run.

We took 22,772 summer chinook eggs from four females. These will be released as smolts in the spring of 1983 and return as adults in the summer of 1985.

Considerable construction work was completed during summer of 1981 to enable this hatchery to rear up to one-million spring and summer chinook salmon smolts a year.

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OBJECTIVES

The objectives of the Pahsimeroi Hatchery are to:

1. Provide a release point for 200,000 pounds of 7-to-12 inch steelhead smolts from Niagara Springs Hatchery.

2. Collect three-to-six-million steelhead eggs when they return from the ocean two years later.

3. Incubate eggs until eyed and then ship the eggs to Niagara Springs Hatchery to be reared.

4. Trap returning spring and summer chinook salmon.

5. Spawn the salmon, eye and hatch the eggs, and rear the salmon fry to smolt stage.

6. Release the salmon smolts into the river and to collect adults two-to-three years later when they return from the ocean.

INTRODUCTION

Pahsimeroi Hatchery is located near Ellis, Idaho on the Pahsimeroi River. It receives its water directly from the Pahsimeroi River and from a series of springs nearby. The incubators can be supplied with either river water or 52-degree spring water.

The fish trap consists of three concrete pens measuring 15-feet x 75-feet x 3.5-feet deep. The fish are held in these pens until they are ripe and the eggs can be taken. The trap has a series of ladders into the structure and a special-but metal weir grate that keeps the fish from leaving the holding pen.

A weir structure 55-feet long is across the Pahsimeroi River to channel the arriving fish into the trap facility.

Two dirt rearing ponds (40-feet x 300-feet) are located six-miles above the trap at a separate facility and will be used to rear and release the chinook salmon smolts.

The trap facility is located near a residence for the hatchery superintendent, two pumphouses, a 10,000 gallon water storage tank, two 10' x 50' mobile homes for storage, and temporary help quarters, a metal shop building, and a cinderblock building used for an office, public restrooms, and an incubator room with capacity for 20 Heath incubation cabinets. In addition, four concrete raceways 4' x 100' were constructed during the summer of 1981 to be used as starter tanks for the salmon program.

The pond area facilities consists of a residence, a small metal storage building, a feed bin to hold dry feed, and a walk-in freezer will be installed in the spring of 1982 to hold frozen salmon fish feed.

WIER COUNT INFORMATION STEELHEAD

Dates of incoming fish....13 February through 3 May 1981.

Numbers of adult steelhead returns....

Males-A Group	1,619	B Group-26	Total-1,645
Females-A Group	1,789	B Group-57	Total-1,845
Total A Group	3,408	83	3,491

Holding pond mortality....Males 77
Females 101
178

Size of fish trapped....

Males ranged from 19-inches to 37-inches.
Females ranged from 20-inches to 36-inches.
About 85% of males ranged from 22-inches to 25-inches.
Most females ranged from 22-inches to 25-inches in length (73%).

SPAWNING INFORMATION

Dates of spawning....10 March through 1 May 1981.

Numbers of females spawned A Group-1,580
B Group- 55
Total-1,635

Number of green eggs taken....A Group-6,527,702
B Group- 376,575
Total-6,904,277

Number of blank eggs picked off....A Group-1,217,992
B Group- 53,263
Total-1,271,255

Eye-up success....A group-81.3%
B Group-84.2%

Average number of eggs per female....A Group-4,130
B Group-6,800

Table 1. Egg take history for steeihead, 10 March-1 May 1981.

Date	Egg take (oz)	Per	Number	Females	Males
		A GROUP			
3-10	650	264	171,600	39	30
3-13	316	264	83,424	18	10
3-17	733	238	174,454	37	30
3-20	1,340	264	353,760	82	60
3-24	1,090	264	287,760	67	30
3-27	2,970	238	706,860	186	80
3-31	1,744	264	460,416	100	50
4-03	1,150	238	273,700	65	30
4-07	2,130	264	562,320	111	50
4-10	1,350	238	321,300	75	40
4-14	1,892	238	450,296	105	60
4-17	1,600	238	380,800	99	45
4-21	2,010	238	478,380	142	65
4-24	4,024	238	957,712	238	90
4-28	2,680	238	637,840	160	86
5-01	860	264	227,080	56	30
Totals	26,539		6,527,702	1,580	786
		B GROUP			
3-24	39	193	7,527	1	1
3-27	128	193	24,704	4	2
3-31	250	172	43,000	6	3
4-07	250	193	48,250	6	3
4-10	178	172	30,616	4	3
4-14	419	172	72,068	11	4
4-17	137	172 .	23,564	4	3
4-21	200	193	38,600	6	3
4-24	90	153	13,770	2	2
4-28	82	172	14,104	2	2
	1,773		316,203	46	26
		A X B GROUP			
4-17	41	172	7,052	1	1
4-21	130	172	22,360	3	1
4-24	150	172	25,300	4	4
4-28	30	172	5,160	1	2
	351		60,372	9	8
		A X HCL			
4-21	316	238	75,208	15	30
		(Henrys Lake Cutthroat)			

EGG SHIPMENTS.

Number of Eyed Eggs Shipped

A Group	3,320,226
B Group	268,285
Total	3,588,511

Eyed Eggs Shipped To:

A Group:	Niagara Springs Hatchery	2,084,754
	Hagerman National Hatchery	714,000
	Hayden Creek Hatchery	521,472
	Total	3,320,226
B Group:	Hayden Creek Hatchery	162,461
	Hagerman National Hatchery	105,644
	Total	268,105

FRY PLANTS

Group A

4/24/81	Hughes Creek	79,800
4/27/81	Basin Creek	148,200
4/29/81	Pine Creek	96,600
4/30/81	Sheep Creek	96,600
4/30/81	N. F. Salmon River	75,600
5/01/81	Lemhi River	109,200
5/01/81	N. F. Salmon River	118,650
5/04/81	Indian Creek	110,200
5/05/81	Yankee Fork	254,600
5/05/81	Squaw Creek	129,200
5/05/81	Thompson Creek	45,600
5/05/81	Slate Creek	45,600
6/04/81	Valley Creek	80,598
6/05/81	Alturas Lake Creek	80,598
6/09/81	W. F. Yankee Fork	297,024
6/09/81	E. F. Salmon River	99,008
6/12/81	Iron Creek	46,464
6/12/81	Morgan Creek	46,464
6/12/81	Pahsimeroi River	21,120
	Total A Group	1,981,126

Group B

5/01/81	Big Springs Creek, Lemhi River	6,000
5/08/31	Big Springs Creek, Lemhi River	57,392
6/01/81	Pahsimeroi River	6,880
	Total B Group	70,272

FISH RELEASES

We released 156 male and 110 female steelhead above the weir on the Pahsimeroi River after the spawning season. They spawned naturally in the Pahsimeroi River.

Table 2. Steelhead smolt transfers from Niagara Springs Hatchery included 36 transport loads of steelhead smolts planted at the weir site in the spring of 1981. The first load arrived 19 March and the last load 27 April.

Date	Pounds	Size/lb	Number	IPC Truck	F&G Truck
3/19	5,000	4.5	22,500	X	
3/20	5,000	3.2	16,000	X	
3/21	5,288	3.2	16,921	X	
3/22	5,000	3.3	16,500	X	
3/23	5,000	3.1	15,500	X	
3/24	5,000	3.1	15,500	X	
3/25	5,000	2.7	13,500	X	
3/30	7,000	4.5	31,500		X
3/30	3,000	4.5	13,500		X
3/30	3,000	4.5	13,500		X
3/30	4,000	5.1	20,400		X
3/30	5,000	5.1	25,500	X	
3/31	3,000	4.5	13,500		X
3/31	7,000	4.5	31,500		X
3/31	7,000	4.4	30,800		X
3/31	5,000	4.4	22,000	X	
4/01	3,000	3.1	9,300		X
4/01	5,000	4.5	22,500		X
4/01	2,000	3.1	6,200		X
4/01	7,000	4.5	31,500		X
4/01	5,000	4.5	22,500	X	
4/02	7,000	3.1	21,700		X
4/02	5,000	3.1	15,500	X	
4/03	300	3.1	930	X	
4/03	4,700	3.2	15,040	X	
4/04	5,000	3.2	16,000	X	
4/05	5,000	3.2	16,000	X	
4/06	5,000	3.2	16,000	X	
4/07	5,000	5.0	25,000	X	
4/08	5,000	5.0	25,000	X	
4/15	5,742	5.3	30,432	X	
4/16	6,500	5.4	35,100	X	
4/17	2,595	5.4	14,013	X	
4/17	3,905	5.7	22,258	X	
4/18	6,500	5.7	37,050	X	
4/19	6,500	5.7	37,050	X	
4/20	6,500	5.7	37,050	X	
4/21	1,500	5.7	8,550	X	
4/21	5,000	4.4	22,000	X	
4/22	6,500	4.4	28,600	X	
4/27	6,500	4.4	28,600	X	
Totals	201,030		862,494		

In addition, two trucks delivered 52,351 A-Group smolts and 39,173 B-Group smolts from the national hatchery at Hagerman. This made a total of 914,845 Group A and 39,173 Group B steelhead smolts planted in 1981.

RESEARCH PROJECTS

Some 40,119 steelhead smolts were vaccinated for vibrio disease at Niagara Springs Hatchery. A nearly identical number, 40,533 smolts, were vaccinated with a placebo, and 40,114 were tagged and released as a control group. This is to test effectiveness of vaccine as well as effects of handling fish during the vaccination process. Each lot of fish was adipose-fin clipped and a coded-wire tag inserted **in** their snout. In 1983 the returns will be checked to determine the effectiveness of the vaccination.

We treated 1,127,620 steelhead eggs with a solution of 1-300 Wescodyne solution. They were water-hardened for 20 minutes before being placed in the incubators. About 50% of the eggs from six egg-takes were treated, and the remaining half were kept as a control. The treated and untreated eggs were shipped at the same time but in separate boxes. They will be raised in separate raceways to observe the effectiveness of the Wescodyne water-hardening **in** viral disease prevention.

The sperm from about 30 Henrys Lake cutthroat was taken, packed on ice, and delivered to Pahsimeroi Hatchery. This sperm was then used to fertilize 75,208 A-strain steelhead eggs. The 68,306 eyed hybrid eggs were then shipped to Eagle Hatchery to be hatched and monitored.

CARCASS DISPOSITION

About 3,000 carcasses were given to the public after spawning. The people came on spawning days and numbered from about 100-to-150. Each person received about one-to-three fish, depending on how many were spawned. We started giving out numbered tags this year, and this was the order in which the fish were given. This eliminated people having to stand in line in the cold weather. They could sit in their cars until we were ready to give away fish.

SUMMER CHINOOK

Weir Count

The first salmon arrived on 29 June and the last one arrived on 2 October. The run total was 35 fish consisting of 26 males, 5 females, and 4 jacks. Some six of the salmon were ad-clipped and belonged to the 1978 smolt release (three-ocean). One female died before spawning started on 9 September.

Length-frequency total run				Length-frequency Ad-clipped		
Length.	Males	Females		Males	Females	
0-22"	4	-		-	-	
25"	2	-		-	-	
26"	2	-		-	-	
27"	2	-		-	-	
28"	1	-		-	-	
29"	3	-		-	-	
30"	3	-		-	-	
31"	3	1		-	-	
32"	1	-		-	-	
33"	2	2		-	1	
34"	1	1		-	-	
35"	2	-		-	-	
36"	3	1		3	1	
37"	1	-		1	-	
Totals:	30	5	= 35	4	2	= 6

SPAWNING INFORMATION

9/09	75 oz	90/oz	6,750	1 female
9/14	68 oz	78/oz	5,304	1 female
9/18	59 oz	90/oz	5,310	1 female
10/02	52 oz	104/oz	5,408	1 female
Totals:	254 oz		22,772	4 females

Pick-off = 13 oz = 1,198 eggs
% Eye-up = 94.8%

CARCASS DISPOSITION

All four females were given to public for consumption. I retained males until mid-October hoping for more females to arrive. By that time, the males were dying in the trap and were not in good enough condition to be given to the public.

FUTURE PLANS

On 7 October 1981, 616,823 spring chinook eggs were picked up at Rapid River Hatchery and will be reared at Pahsimeroi Hatchery.

HATCHERY CONSTRUCTION

During the summer of 1981, Idaho Power Company invested nearly $200,000 in new construction at Pahsimeroi Hatchery. David Taylor, Civil Engineer from Idaho Power Company, directed the construction. Shafer Construction Company from Salmon did the work. The construction phase took three months, from mid-May to mid-August.

Four concrete raceways measuring 4' x 100' were built. An insulated metal house measuring 10' x 12' was built to house the electric and gasoline pumps. The pumps are used to pump river water to the incubation storage tank to use to incubate salmon eggs. A four-inch plastic water line was laid to carry water from the pumphouse to the storage tank. An overflow was built to enable us to pass water around the trap when we have to lower the water level to spawn and sort fish. The incubation water storage tank was insulated with two-inches of polyurethane foam. A silt-settling lagoon was built on the inlet canal to the trap and raceways.

The pond facility had a new water diversion structure built in the river. It consisted of sheet piling driven into the stream channel. It has four keyways where stop-logs can be placed to control the level of the water in the canal. The original ponds were shortened by new levees and keyways. The remaining section of pond will become the effluent settling area. A concrete slab was poured and will be used as the pad for a new walk-in freezer that will be erected in March of 1982. Two cattle guards were installed on the road into the hatchery. The road into the hatchery was improved by addition of culverts and a gravel base. New drum screens were purchased for the tail-race sections of each pond.

ACKNOWLEDGEMENTS

Hatchery staffing during the fish year included:

Bob Moore, Fish Hatchery Superintendent I
Bob Rose, Temporary Laborer (three months)
Jeanne Ellis, Temporary Laborer (part-time during year)

Help was received from other department personnel and other government agencies during the steelhead spawning period (YACC).